

MA State Building Code (780 CMR) Review

10 Favor Street is an existing building as defined in 3400.3.1. Code review starts with Article 780 CMR 34.00 "Existing Structures"

3400.3.1 Exception 2: Other than structural work existing buildings or portions thereof which are changed in use from any use shall not qualify as existing buildings, but shall comply with the provisions of 780 CMR 4.00, as applicable.

Occupancy of part of the 1st floor of 10 Favor Street as a Group Residence shall comply with Article 780 CMR 421.0 "Group F and occupancy requirements in full.

421.0 Group Residence

421.1 Scope. Except as may otherwise be specifically provided for in 780 CMR 421.0, the requirements of 780 CMR, in its applicable, shall apply.

421.2 Definition. A group residence is a premise licensed by or operated by an agency of the Commonwealth of Massachusetts thereof, as a special residence for those who are capable of self-preservation in the categories listed in 780 CMR 421.2 Items 1. not more than 12 unrelated persons between the ages of seven through 15 years of age; or 2. not more than 25 unrelated persons, 16 years of age or older; or 3. a combination of 780 CMR 423.2 Items 1. and 2. consisting of not more than 18 unrelated persons over seven years of two such persons, or portion thereof, from Item 2. being equal to one such person in Item 1. all in accordance with Table 42

Note: In determining the classification for proposed use, group residence shall not be construed as being similar in a two-family dwelling, boarding house, lodging house, dormitory, hotel, school or institution of any kind. For the purposes of 780 CMR 421.0, a group residence shall be classified as a single-family residential building.

421.2.1 Special Definitions. For the purpose of 780 CMR 421.0, the following terms shall be defined exclusively for use with group residences. Egress.: A continuous unobstructed path of travel from any space in a building to the open air outside at grade. Escape Route. To reduce the possibility of entrapment in the event that the principal means of egress is blocked by a physical barrier, there shall be available which performs in accordance with 780 CMR 421.6 and 421.9. In an existing building where a second means of egress is physically impractical from above grade floors, any proven, usable path to the open air outside at grade shall be deemed acceptable, including but not limited to connections within six feet of grade, ramps, fire escapes, balcony evacuation systems, etc.

Principal Means of Egress. The primary choice of two routes normally used by occupants to enter or leave a room. See definition of "Habitable space" and "Occupiable room" in 780 CMR 201.0. Self Preservation. Having the capability, both mentally and physically, to take action to preserve one's own life. Specified within 21/2 minutes. (Reference inspection procedures in 780 CMR 421.8 and 421.9.)

421.3 Existing Buildings. The requirements of 780 CMR 421.0, shall also apply to existing dwelling units which are group residences and alternative requirements set forth in 780 CMR 34.00 that conflict with the requirements of 780 CMR 421.0 shall apply.

421.3.1 Height Limitations. Existing buildings, of Type 5B construction, greater than 21/2 stories, or 35 feet in height may be an exception to Table 503) as a group residence.

421.4 Plans and Specifications. Plans shall be filed with the building official having jurisdiction in accordance with 780 CMR 34.00. Plans shall be constructed as, or altered for use as, a group residence under 780 CMR 421.0. The floor plans shall show all rooms, space corridors, windows, stairs and stairways, hazardous vertical openings and the location of all required fire warning equipment and suppression equipment.

421.5 Hazardous Contents. Any contents which represent a fire hazard greater than that which could be expected of ordinary contents shall not be allowed. Storage shall not be allowed above the second floor.

421.5.1 Interior Finish. Only Class I and Class II interior finish materials shall be allowed in the principal means of egress and other area, material having a Class III flame spread rating shall be allowed provided it does not decrease the existing rating. The flame rating of any material shall not exceed 450 (see 780 CMR 704.0).

421.5.2 Exception. In existing buildings, the required flame spread or smoke development classification of interior surfaces shall be obtained by applying approved fire retardant paints or solutions to existing interior surfaces having a higher flame spread rating than permitted.

421.6 Egress. In existing buildings there shall be one means of egress and one escape route serving each floor, room, or area, each other and leading to grade. The stairway between the first and second floors, if unenclosed, may remain unenclosed to meet aesthetic requirements. In new construction, two means of egress are required in accordance with the 780 CMR 51.00 (Two-Family Dwelling Code), and stairways above the grade floor shall be enclosed with one hour fire-resistive construction.

Exceptions:

- 1. Where the Group Residence is protected with a fire suppression system according to NFPA 13D or better as listed in Table 706.3.7, means of egress shall be required from floors above the grade floor in existing buildings and new construction.
- 2. Where the Group Residence is protected with a fire suppression system according to NFPA 13D or better as listed in Table 706.3.7, enclosure of stairways is not required.

421.7 Fire Protection Systems.

421.7.1 Hazardous Vertical Openings. Openings to such spaces as laundry chutes, dumbwaiters, heating plenums or combustible concealed spaces shall be permanently blocked with one hour construction, as required by 780 CMR 7.00.

421.7.2 Automatic Fire Warning Systems. An approved automatic fire warning system shall be provided in accordance with 780 CMR 7.00.

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Building characteristics, and mixed use.

10 Favor Street is a 2 story structure with a full basement; the fire area is 3,196 sf. The construction type is IIIB (exterior masonry walls with wood frame structure). The existing use is Business (B). The building is served by two egress stairs and two main exits on the 1st floor. There are two additional exit doors from the basement at intermediate landings of the two stairs; these are not considered part of the egress from the 1st or 2nd floor.

The existing B use is continued on the 2nd floor and basement levels. The proposed use of Group Residence is located on a portion of the 1st floor and shares the exits with the B use. For purposes of reviewing the mixed use code requirements, the Group Residence (on the basis of the definition in 780 CMR 421.2 of a group residence as a single-family residential building) is best designated a R-3 use.

302.3 Mixed Occupancies. Where a building is occupied by two or more uses not included in the same occupancy classification, the building or portion thereof shall comply with 780 CMR 302.3.1 and/or 302.3.2.

Exceptions: Not applicable

302.3.1 Nonseparated Uses. Each portion of the building shall be individually classified as to use. The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building. All other code requirements shall apply to each portion of the building based on the use of that space except that the most restrictive applicable provisions of 780 CMR 403.0 and 780 CMR 9.00 shall apply to these nonseparated uses. Fire separations are not required between uses, except as required by other provisions.

The proposed use of the part of the 1st floor as a Group Residence within the overall structure containing Business uses is as Nonseparated Uses. Review of construction type, fire areas, height for most restrictive uses, and other provisions for separation follow.

TAB 503 Allowable Height and Building Areas (for Type IIIB construction)

Use B 4 stories, 19,000 sf
Use R-3 4 stories, unlimited (for reference, R-1, R-2, R-4 uses provide for 4 stories, 16,000 sf).

No height or area modifications are required (existing building is not protected by AFES). The existing building height (2 stories) and area (3,196 sf) are substantially less than the most restrictive requirements of either use proposed for the mixed use non-separated occupancy.

TAB 601 Fire Resistance Rating Requirements for Building Elements (for Type IIIB construction)

Structure frame 0 HR
Bearing wall, ext 2 HR
Bearing wall, int 0 HR
Non-bearing, int 0 HR (but see other requirements)
Floor 0 HR
Roof 0 HR

Other separation requirements.

- 708.1 General. The following wall assemblies shall comply with 780 CMR 708.0.
 - 1. Walls separating dwelling units in the same building.
 - 2. Not applicable
 - 3. Not applicable
 - 4. Corridor walls as required by 780 CMR 1016.1.
 - 5. Not applicable

708.2 Materials. The walls shall be of materials permitted by the building type of construction.

708.3 Fire-resistance Rating. The fire-resistance rating of the walls shall be at least one hour.

Exceptions:

- 1. Corridor walls as permitted by Table 1016.1.
- 2. Not applicable

- 711.1 General. Floor and roof assemblies required to have a fire-resistance rating shall comply with 780 CMR 711.0.
- 711.2 Materials. The floor and roof assemblies shall be of materials permitted by the building type of construction.
- 711.3 Fire-resistance Rating. The fire-resistance rating of floor and roof assemblies shall not be less than that required by the building type of construction. Where the floor assembly separates mixed occupancies, the assembly shall have a fire-resistance rating of not less than that required by 780 CMR 302.3.2 based on the occupancies being separated. Where the floor assembly separates a single occupancy into different fire areas, the assembly shall have a fire-resistance rating of not less than that required by 780 CMR 706.3.7. Floor assemblies separating dwelling units in the same building or sleeping units in occupancies in Group R-1, hotel occupancies, R-2 and I-1 shall be a minimum of one-hour fire-resistance-rated construction.

Although the non-separated mixed use requirements suggest that the Business and Group Residence use may be permitted without separation assemblies, review of dwelling unit requirements (the Group Residence is effectively a dwelling unit occupying a portion of the building) indicate that provision of 1 HR separation between the Group Residence and abutting Business use space (horizontally and vertically) is appropriate. 1 HR separation is achieved by applying UL listed intumescent coatings to existing separation walls and adding a layer of type X fire rated gypsum board to horizontal floor-ceiling assemblies.

ALP Group Residence

10 Favor Street
Lowell, MA

Key Program Inc.
670 Old
Connecticut Path
Framingham, MA

ARCHITECT

Roundel 47 LLC
46 Allen Place
Scituate, MA 02066

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REVISION

Permit	03-31-10
SD	03-15-10

PROJECT NO: 47120

DWG SCALE: 1/8" = 1'

DRAWN BY: AW

CHK'D BY: MJW

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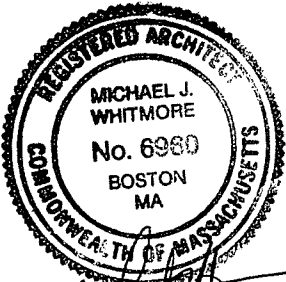
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Notes-Bldg
Code Analysis

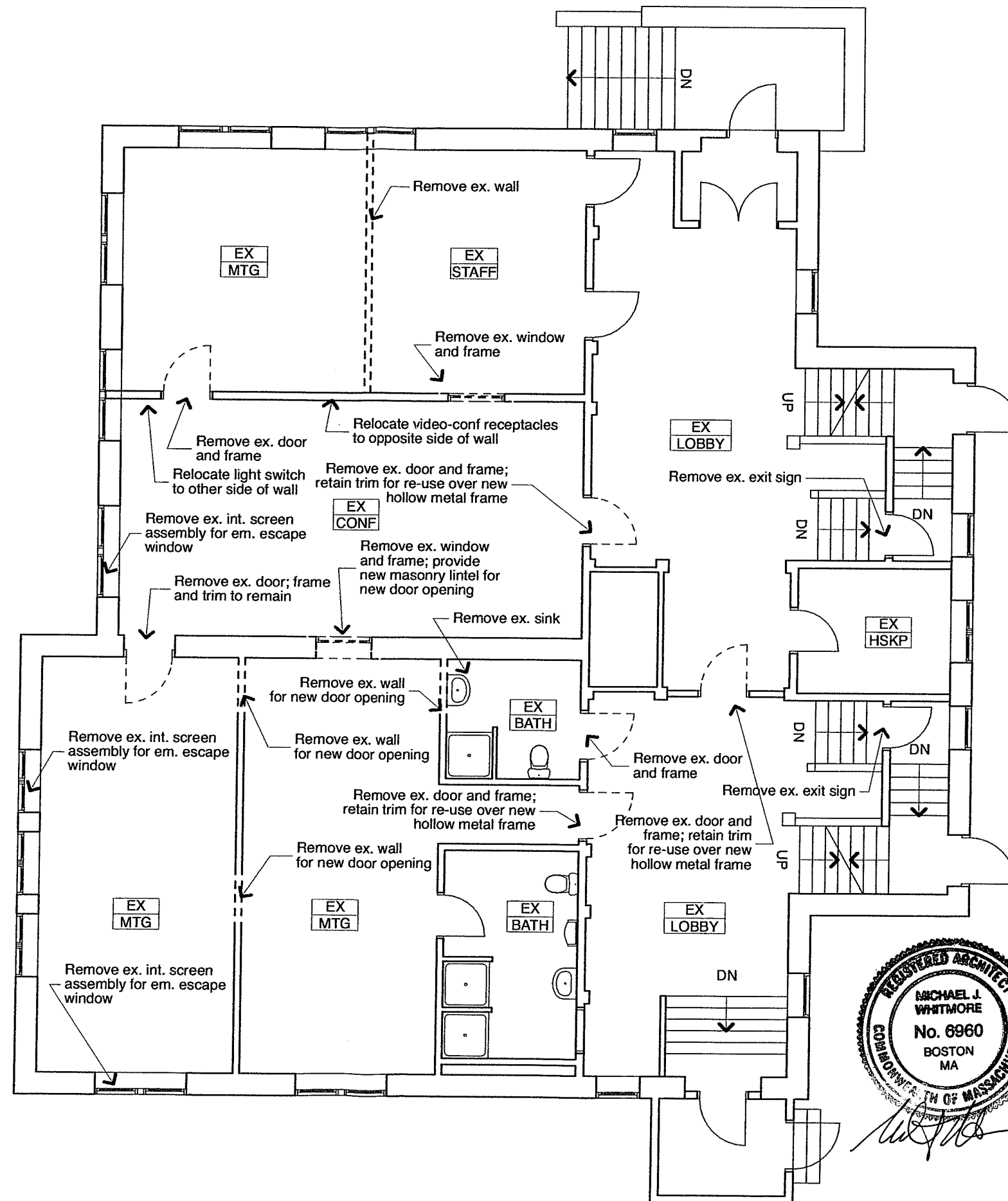
A0

OFFICE PLANS
201011449

APR 12 2010



Raymond Costello



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SHEET TITLE

Existing-
Demolition Plan
1st Floor

A1

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SHEET TITLE

Proposed Plan
1st Floor

A2

1 HR rated wall assembly

Ex. and new plaster-gwb surfaces to receive 1) coat SafeCoat Latex intumescent paint (see spec sheet) ea. side of partition

Ex. wood wainscot and trim surfaces to receive SafeCoat clear intumescent paint system (see spec sheet): 1) coat #725 sealer + 2) coat #747 clear finish + 1) coat #725 top coat ea. side of partition

All intumescent finishes to achieve specified thickness for rating

Class I flame spread finish

Ex. wood wainscot and trim surfaces to receive SafeCoat clear intumescent paint system (see above) on surfaces in Primary Egress (Rm 108)

Door types

- (A) 36"x80"x1 3/4" solid core flush door w/ 4x25 safety glass light; 20 min. rating; LCN closer; Schlage AL series lever set (keyed at entries to Group Residence, passage at Lobby connecting door); 18 ga. hollow metal frame Amweld HR series suitable for trim overlay; replace ex. trim after frame installed at ex. opening; confirm ex. wall thickness
- (B) 36"x80"x1 3/4" solid core flush door; no rating; Schlage AL series lever set (passage at bedrooms, privacy at bathroom); 18 ga. hollow metal frame Amweld DU series; 4 3/4" throat depth

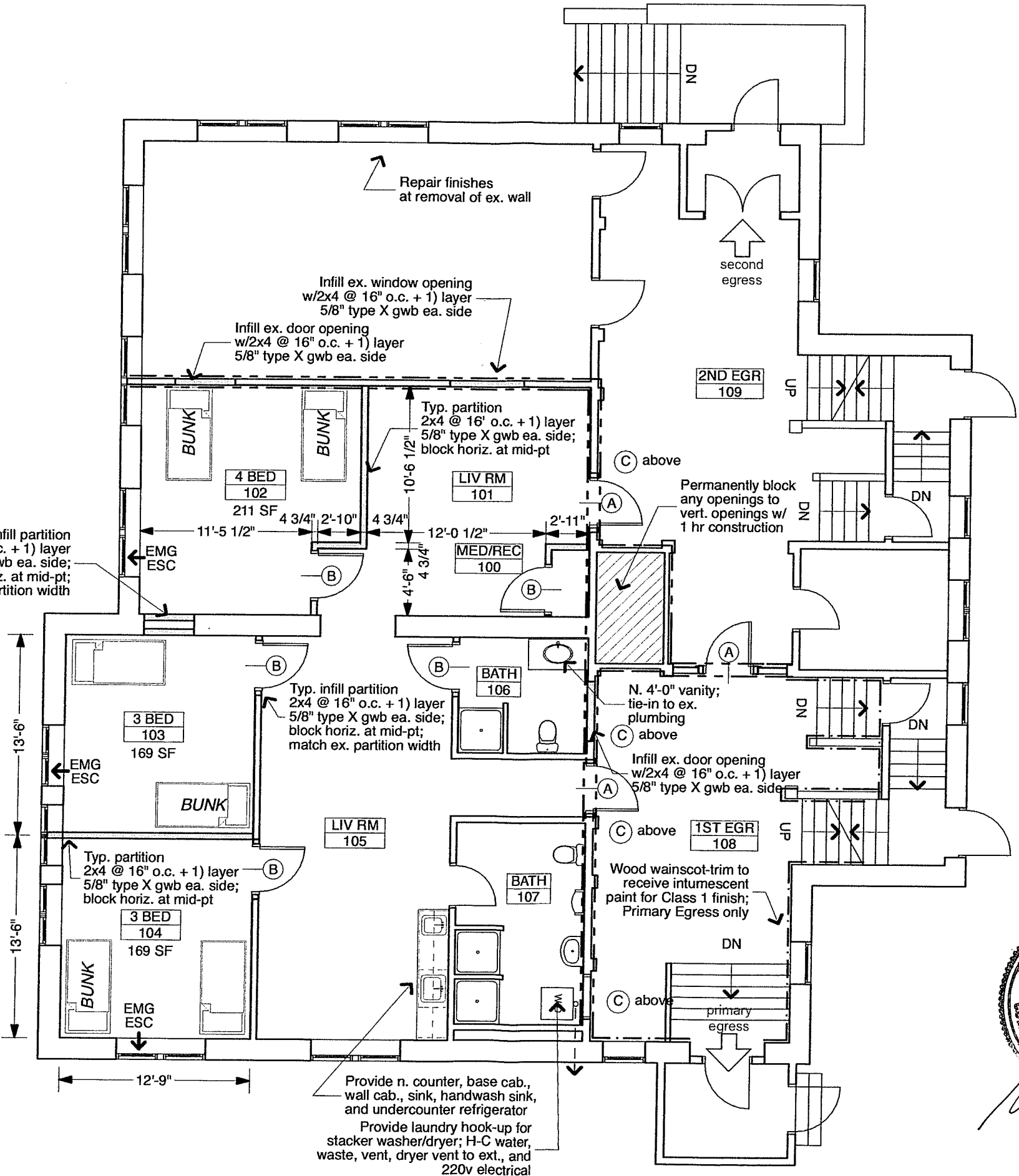
Transom replacement

- (C) Remove ex. glass-panel transom and replace w/ 1 1/2" x 1 1/2" lt.ga. metal framing and 1) layer of type X gwb ea. side

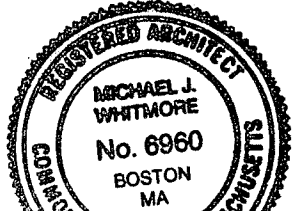
Typ. infill partition
2x4 @ 16" o.c. + 1) layer
5/8" type X gwb ea. side;
block horiz. at mid-pt;
match ex. partition width

13'-6"
13'-6"

12'-9"



Provide n. counter, base cab.,
wall cab., sink, handwash sink,
and undercounter refrigerator
Provide laundry hook-up for
stacker washer/dryer; H-C water,
waste, vent, dryer vent to ext., and
220v electrical



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SHEET TITLE

Life Safety Plan
1st Floor

A3

Life safety legend

- NCO New CO detector; local
- NSD New smoke detector; system
- XSD Ex. smoke detector; system
- NHD New heat detector; system
- XHD Ex. heat detector; system
- NMP New manual pull station; system
- XMP Ex. manual pull station; system
- NHS New horn-strobe; system
- XHS Ex. horn-strobe; system
- ⊗ NEX New comb. exit sign emergency lighting; 90 min. power
- ⊗ XEX Ex. exit sign
- ⬆ N New emergency lighting; 90 min. power
- ⬆ X Ex. emergency lighting

NOTE
All fire alarm and life safety equipment work to comply with applicable requirements of MA State Bldg (780 CMR) and Fire Prevention (527 CMR) codes

Shaded area indicates Group Residence occupancy; provide 1 HR rating at floor-ceiling assembly above and below by adding 1x3 strapping screwed to ex. joists and 1) layer type X gypsum board screwed to strapping; fire tape basement, tape and finish Group Residence ceiling and paint

